

PATENT SPECIFICATION

DRAWINGS ATTACHED

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COMPLETE SPECIFICATION

Improvements in or relating to Illuminating Devices such as Approach Lights for Airports

We, PHILIPS ELECTRICAL INDUSTRIES LIMITED, of Abacus House, 33 Gutter Lane, Finsbury, London, E.C.2., a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

An illuminating device is known which is particularly suited for use as an approach light at airports and which comprises a reflector housed in a cabinet and co-acting with a light source. In this known device, the reflector, together with the light source, is adjustable with respect to the cabinet, the associated adjusting mechanism, which projects to the rear of the reflector, extending into the vicinity of the removable rear wall of the cabinet. In addition, the cabinet also contains the auxiliary apparatus for the light source.

Adjustability of the reflector and its light source with respect to the cabinet is desirable, since, if such an illuminating device is used as an approach light at an airport, a large number of such devices is arranged in a given configuration and the emitted beam from each lamp is adjusted with relation to the beam from the nearest lamp and to the given approach direction of the aircraft. Consequently, the presence of the said adjusting mechanism enables identical apparatus to be utilized despite the individual requirements imposed upon each illuminating device. Since the devices are arranged in the open air it is advantageous for each adjusting mechanism to be arranged inside a cabinet which can readily be made moisture-tight. In order to obtain easy access to the adjusting mechanism the rear wall of the cabinet may be removable. The light source commonly used in such a device is a gaseous discharge lamp which in most cases comprises a comparatively com-

plicated bulb of helical shape. The lamp is secured in a lampholder by means of an attachment device which may comprise a bayonet pin type of connector plug. In the known device, if the lamp is to be changed the reflector must be displaced along a rail construction towards the removable rear wall of the cabinet and the lamp subsequently removed from the reflector at the front side thereof. Hence it is necessary to grip the comparatively vulnerable bulb of the lamp. In this known structure the rails extend over the auxiliary apparatus arranged on the base of the cabinet.

In the known structure the poor accessibility of the light source is one of its principal disadvantages. In addition, the space in the cabinet behind the reflector is of little use.

An object of the present invention is to provide a more efficacious arrangement and design of the component parts of the illuminating device present in the cabinet.

According to the invention, in an illuminating device of the above type the light source is removable from the reflector through an aperture in the rear side thereof, and a frame which carries the auxiliary apparatus for the light source is movably arranged in the cabinet in the space between the rear side of the reflector and the removable rear wall of the cabinet.

Since the light source is removed through the rear side of the reflector, it is no longer necessary for the reflector to be slidable in the cabinet. In addition, the space in the cabinet behind the reflector is effectively utilized by arranging the auxiliary apparatus in it. By incorporating the auxiliary apparatus in a frame which is movably arranged in the cabinet, the rear side of the reflector readily becomes accessible when the light source is to be changed. Since the light source is re-

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5 moved through the rear side of the reflector, its holder also can be removed from the reflector. Consequently, in removing the light source, only the holder need be handled and there is no necessity to touch the light source itself.

10 In a preferred embodiment of the device according to the invention, the frame which carries the auxiliary apparatus can rotate about a shaft located in the vicinity of one side of the cabinet. This shaft is preferably of a construction such that the frame can be removed from the cabinet. The frame can also be provided with means for temporarily supporting the holder for the light source so that after positioning the cabinet the auxiliary apparatus and the light source holder, together with the light source if desired, can be fitted as a unit in the cabinet.

20 The cabinet and the frame can be provided with co-acting contacts such that the auxiliary apparatus is live only when the frame is in its operative position in the cabinet.

In order that the invention may be readily carried into effect, reference will now be made by way of example to the accompanying drawings, in which:—

25 Figure 1 is a side view of an illuminating device according to the invention with part of one side wall removed, and

30 Figure 2 is a plan view of the same device with part of the upper wall removed.

The cabinet of this illuminating device is designated 1 and comprises two side walls 2 and 3, an upper wall 4, a base 5, a front wall 6 and a rear wall 7. A closure glass 8 is mounted in a moisture-tight manner (not shown) in the front wall 6. The rear wall 7 is secured to the cabinet with proper sealing (not shown) by means of a plurality of screws 9 and may be removed from the cabinet by loosening these screws.

45 Secured to the base 5 of the cabinet are two vertical brackets 10 and 11 which carry bearings 12 and 13 in which a shaft 14 carrying a reflector body 15 is rotatably supported. A lever 16 secured to shaft 14 carries a securing bolt 17 at its end, the lever extending into the vicinity of the removable rear wall 7. The bolt 17 extends through an arcuate slot 18 provided in a bracket 19 which is secured to the base 5 of the cabinet. When the rear wall 7 is removed from the cabinet 1, the adjusting mechanism of the reflector is thus accessible. By loosening a nut 17a the bolt 17 may be displaced in the slot 18 so that the reflector body 15 is turned on its shaft 14 in the bearings 12 and 13 and thus rotated about a horizontal axis. If desired, it is possible to provide also an adjusting mechanism which permits rotation of the reflector body 15 about a vertical axis.

60 The rear side of reflector body 15 has a flange 20 to which a cylindrical casing 21

may be secured. This casing contains a lamp holder 22 carrying a light source 24 which extends through an aperture 23 in the reflector body 15. The light source 24 is a gaseous discharge lamp, the glass bulb of which is of helical shape. The light source 24 is secured by means of a bayonet pin construction (not shown) in an associated sleeve provided in the lamp holder. The lamp holder 22 is connected by means of a cable 25 to the auxiliary apparatus for the light source. This auxiliary apparatus (not shown) is incorporated in a frame 26 which is movably arranged in the cabinet 1. As may be seen from the drawings, the frame is situated in the cabinet between the rear side of reflector body 15 and the removable rear wall 7. It is secured to a rotatable vertical shaft which, when the rear wall is removed, enables the frame to be swung outwards, as shown in dotted lines in Figure 2. The shaft comprises two trunnions 27 and 28 which rotate in bearings in the upper wall 4 and base 5 of the cabinet 1. One half 29 of a safety switching mechanism is secured to an end wall of the frame 26, the other half 30 being secured to the side wall 2 of the cabinet. The current supply cable for the illuminating device is indicated by 30a.

When the light source is to be changed the rear wall 7 of the cabinet is removed and the frame 26 is then swung outwards through substantially 90° on the trunnions 27 and 28 so as to assume the position shown in dotted lines in Figure 2. During this operation the safety switch 29, 30 is automatically opened so that no part of the device is alive. Without it being necessary to move the reflector, the light source may then be removed from the reflector by loosening the casing 21 from the flange 20 and removing it from the rear side of the reflector body 15 so that the light source 24 is withdrawn through the aperture 23 therein. The light source may subsequently be removed from the lamp holder 22 at a location which is readily accessible and a new light source placed in the lamp holder. The casing 21, together with the lamp holder 22 and the new light source, may thereafter be secured again to the reflector body 15. Finally the frame 26 is swung inwards and the rear wall 7 again secured in position.

For adjusting the reflector in the cabinet, it is only necessary to remove the rear wall 7 thereof. As may be seen more particularly from Figure 2, the adjusting mechanism of the reflector remains accessible even when the frame 26 occupies its operative position.

It may also be seen from Figure 2 that the auxiliary apparatus may be so arranged in frame 26 that a space 31 is left in which the light source can be temporarily accommodated. The frame 26 may include means 32 by which the casing 21, after its removal

from the reflector, can be temporarily supported on the frame 26 so that the light source 24 extends into the space 31. When the trunnions 27 and 28 are such that they can be lifted in a simple manner from the associated bearings, it is possible in mounting the illuminating device first to place the comparatively light cabinet 1, together with the reflector 15 and the associated adjusting mechanism, on the foundation and only afterwards to arrange in the cabinet the comparatively heavy frame 26 which contains the auxiliary apparatus and hence can carry the light source and the associated lamp holder and casing.

WHAT WE CLAIM IS:—

1. An illuminating device which comprises a reflector housed in a cabinet and co-acting with a light source and in which the reflector, together with the light source, is adjustable with respect to the cabinet, and the associated adjusting mechanism, which projects to the rear of the reflector, extends into the vicinity of the removable rear wall of the cabinet, the cabinet also containing the auxiliary apparatus for the light source, wherein the light source is removable from the reflector through an aperture in the rear side thereof, and wherein a frame which carries the auxiliary apparatus for the light source is movably arranged in the cabinet in the space

between the rear side of the reflector and the removable rear wall of the cabinet.

2. An illuminating device as claimed in Claim 1, wherein said frame is rotatable about a shaft located in the vicinity of one side of the cabinet.

3. An illuminating device as claimed in Claim 2, wherein the construction of said shaft is such that the frame can be removed from the cabinet.

4. An illuminating device as claimed in Claim 1, 2 or 3, wherein the frame is also provided with means for temporarily supporting the holder for the light source.

5. An illuminating device as claimed in any of the preceding claims, wherein the cabinet and the frame are provided with co-acting contact members such that the auxiliary apparatus is live only when the frame is in its operative position in the cabinet.

6. An illuminating device particularly suited for use as an approach light at airports, substantially as herein described with reference to the accompanying drawing.

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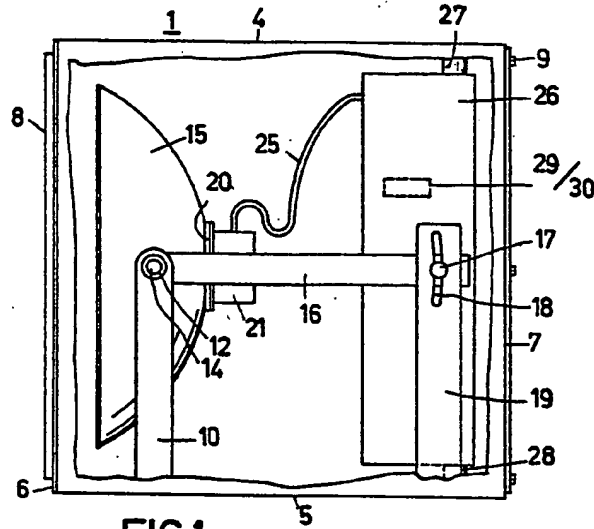


FIG. 1

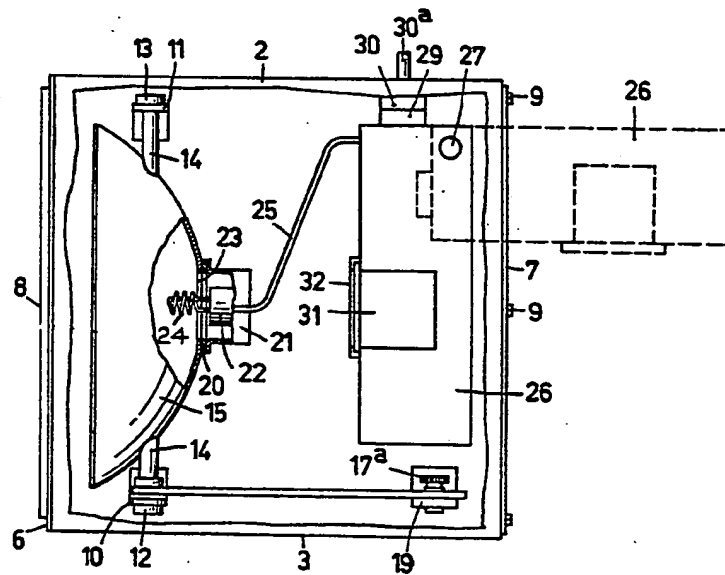


FIG. 2